

REMARKS

Claims 1-20, 22, and 29-32 were pending in the application. Claims 7 and 22 are cancelled, claims 1, 14 and 29 are amended, and claims 33-40 are added. Applicant respectfully requests reconsideration of the pending claims in view of the amendments and the foregoing remarks.

1. Provisional Double-Patenting Rejection

Applicant acknowledges the Examiner's allegation that claims 1-20, 22, and 29-32 are provisionally rejected on the grounds of non-statutory obviousness-type double patenting in view of claims 12-24 of co-pending Application No. 10/749,424. Applicant awaits to respond in view that designation is "provisional" and alleged claims have not been allowed to issue.

2. Claim Rejections in View of Prior Art

Claims 1-20, 22, and 29 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,490,474 to Willis et al. (herein "the Willis et al. reference") in view of U.S. Patent No. 6,515,657 to Zanelli (herein the Zanelli reference). Claims 30-32 stand rejected under 35 U.S.C. 103(a) as being obvious over Willis et al. in view of the Zanelli reference and in further view of U.S. Patent No. 6,332,089 to Acker et al. (herein "the Acker et al. reference").

Claim 1 as amended, recites a system for displaying a three-dimensional image of an organ or structure inside the body, the system comprising, amongst other things, a three-dimensional display coupled to the processor and configured to simultaneously display the three-dimensional image and a representation of the probe, where the three-dimensional display is comprised of pre-operative image data acquired prior to the probe being positioned inside the body.

Willis et al. reference does not disclose a three-dimensional display coupled to the processor and configured to "simultaneously display the three-dimensional image" of an organ or structure inside the body and a representation of the probe. Rather, Willis et al. reference discloses use of ultrasound reference catheters to measure "time of flight" of acoustic signals and thereby to calculate distance, and in combination with triangulation

to establish a three-dimensional coordinate system using the reference transducer on the reference catheter 10. Col. 5, lines 1-48. Then additional catheter transducers track the location of an additional catheter 12, 14, 16 relative to the coordinate system. Col. 5, lines 48-61. Willis et al. merely discloses that the location of the ablation catheter 12, the reference catheters, and other additional catheters relative to the coordinate system can then be displayed. Col. 5, line 60-col. 6, line 59 and Figs. 31 and 32. However, there is no disclosure of a three-dimensional display coupled to the processor and configured to “simultaneously display the three-dimensional image of an organ or structure inside the body” and a representation of the probe, where the image data of the three-dimensional display is acquired prior to the probe being positioned inside the body, as recited in claim 1.

The Zanelli reference merely discloses tracking of an ultrasound transducer relative to projections of image data “that preferably reflect the current location of the medical device, and depending on the frequency of updating the image of the organ or tissues, may also show a real-time image of such organ or tissues.” Col. 4, lines 33-67. The Zanelli reference also discloses “x-ray methods might be used to track a catheter from its insertion point near the groin until it comes into the view with the transducer.” Col. 4, lines 57-67. However, Zanelli does not teach or suggest a three-dimensional display comprised of pre-operative image data acquired “prior” to the transducer entering the body. Therefore, the Zanelli reference does not disclose creating a three-dimensional display configured to simultaneously display the three-dimensional image and a representation of the probe, where the three-dimensional display is comprised of pre-operative image data acquired prior to the probe being positioned inside the body, as recited in amended claim 1.

A review of the other cited references fails to teach this limitation of claim 1 as amended. For at least the above-described reason, the cited references do not disclose each and every limitation of the claimed invention. Accordingly, reconsideration and withdrawal of the rejection of claim 1 is respectfully requested.

Claims 2-6, 8-13 and 35-36 depend either directly or indirectly from claim 1, and are believed allowed for similar reasons that claim 1 is believed allowable. Claims 2-6, 8-13 and 35-36 may also recite patentable subject matter in addition to that recited for

claim 1. For example, none of the cited references teach the three-dimensional image includes a pre-operative image data that is weighted to match an acquired intra-operative image data, as recited in claim 35. In another example, none of the cited references teach the three-dimensional display further includes a visual indication of a change in color of the pre-operative image data in response to detection within a predetermined tracked distance relative to the probe.

Claim 14 recites a system for displaying a three-dimensional image of a heart, the system comprising, inter alia, a processor configured to be communicatively coupled to a probe, memory coupled to the processor and configured to store image data pertaining to the heart; and a three-dimensional display coupled to the processor and configured to simultaneously display the three-dimensional image of the heart and a representation of the probe, where the three-dimensional display is comprised of pre-operative image data acquired prior to the probe being positioned inside the body.

For reasons similar to those described above for claim 1, the cited references do not teach a three-dimensional display coupled to the processor and configured to simultaneously display the three-dimensional image of the heart and a representation of the probe, where the three-dimensional display is comprised of pre-operative image data acquired prior to the probe being positioned inside the body, as recited in amended claim 14. Thus, the cited references do not each and every limitation of the claimed invention. Accordingly, reconsideration and withdrawal of the rejection of claim 14 is respectfully requested.

Claims 15-20 and 37-38 depend either directly or indirectly from claim 14, and are believed allowed for similar reasons that claim 14 is believed allowable. Claims 15-20 and 37-38 may also recite patentable subject matter in addition to that recited for claim 14. For example, none of the cited references teach the three-dimensional image includes a pre-operative image data that is weighted to match an acquired intra-operative image data, as recited in claim 37. In another example, none of the cited references teach the three-dimensional display further includes a visual indication of a change in color of

the pre-operative image data in response to detection within a predetermined tracked distance relative to the probe, as recited in claim 38.

Claim 22 is cancelled.

Claim 29 as amended recites a system for displaying a three-dimensional image of an organ or structure inside the body, the system comprising, inter alia, a processor configured to simultaneously display the three-dimensional image and a representation of the probe, where the three-dimensional display is comprised of pre-operative image data acquired prior to the probe being positioned inside the body.

For reasons similar to those described above for claim 1, the cited references do not disclose simultaneously display the three-dimensional image and a representation of the probe, where the three-dimensional display is comprised of pre-operative image data acquired prior to the probe being positioned inside the body. For at least this reason, the cited reference does not teach each and every limitation of the claimed invention. Accordingly, reconsideration and allowance of claim 29 is respectfully requested.

Claims 30-33 and 39-40 depend either directly or indirectly from claim 29, and are believed allowed for similar reasons that claim 29 is believed allowable. Claims 30-33 and 39-40 may also recite patentable subject matter in addition to that recited for claim 29. For example, none of the cited references teach the three-dimensional image includes a pre-operative image data that is weighted to match an acquired intra-operative image data, as recited in claim 39. In another example, none of the cited references teach the three-dimensional display further includes a visual indication of a change in color of the pre-operative image data in response to detection within a predetermined tracked distance relative to the probe, as recited in claim 40.

New claim 34 recites a system for displaying a three-dimensional image of a heart that comprises, inter alia, a three-dimensional display coupled to the processor and configured to simultaneously display the three-dimensional image of the heart and a representation of the probe, where the three-dimensional display further includes a visual indication of a change in color of at least a portion of the three-dimensional image in response to detection within a predetermined tracked distance relative to the probe.

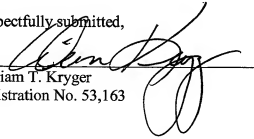
None of the cited references teach a visual indication of a change in color of at least a portion of the three-dimensional image in response to detection within a predetermined tracked distance relative to the probe. For at least this reason, allowance of claim 34 is respectfully requested.

CONCLUSION

No fees are believed due with this communication. Yet, the Commissioner is hereby authorized to charge any additional fees, or credit any overpayment, which may be required regarding this application to Deposit Account No. 070845. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension and authorizes payment of any such extension fees to Deposit Account No. 070845.

The Examiner is invited to contact the undersigned by telephone at 262-548-4654 if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

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